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South Dakota Timber Industry—An Assessment of Timber Product Output and Use, 1999

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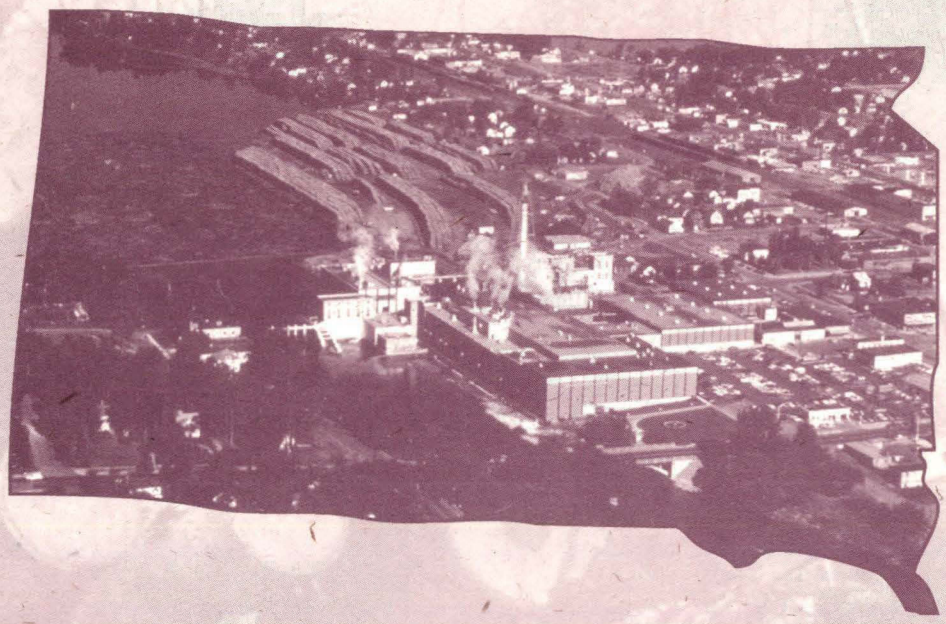

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FOREWORD

In this bulletin we discuss recent South Dakota forest industry trends and report the results of a detailed study of the forest industry, industrial roundwood production, and associated primary mill wood and bark residue in South Dakota in 1999. Such detailed information is necessary for intelligent planning and decisionmaking in wood procurement, forest resources management, and forest industry development. Likewise, researchers need current forest industry and industrial roundwood information for planning projects.

Special thanks are given to the primary wood-using firms for supplying information for this study and to the State of South Dakota Department of Agriculture, Resource Conservation and Forestry for canvassing the respondents. Their cooperation is greatly appreciated.

Tables in the appendix relating to sawtimber volume are presented in both International 1/4-inch rule and cunits (100 cubic feet). The International 1/4-inch rule is the USDA Forest Service standard, while the cunit is a common measure used in South Dakota by forest industries and land management agencies. Because these results are used nationally and consistent comparisons are crucial, the International 1/4-inch rule is used as the unit of measure for sawtimber volume unless cunits are noted in the text. The authors have made an effort to include cunit tables to improve the utility of the inventory results for regional and local users of these results.

All board foot data in this report have been converted to International 1/4-inch scale by applying a multiplier of 1.08 to all saw log volumes reported in Scribner Decimal C scale by sawmills and a multiplier of 1.38 to all saw log volume reported in Doyle scale by sawmills. Cunit volumes in this report have been converted from International 1/4-inch scale by applying a multiplier of 1.63 to all saw log volumes.

The last published report from a detailed study of all industrial roundwood output in South Dakota was for 1993. Most comparisons in this report are with the 1993 study results. Rows and columns may not sum due to rounding, but data in each table cell are accurately displayed.

CONTENTS

Highlights 1

Primary Timber Industry—Industrial Roundwood 1

Saw Logs 3

Other Products 4

Timber Removals 4

Harvest Residues 4

Primary Mill Residues 4

Appendix 7

Study Methods 7

Definition of Terms 7

Common and Scientific Names of Tree Species Mentioned in This Report 11

Table Titles 12

Tables 13

South Dakota Timber Industry—An Assessment of Timber Product Output and Use, 1999

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HIGHLIGHTS

PRIMARY TIMBER INDUSTRY—INDUSTRIAL ROUNDWOOD

- In 1999, South Dakota's primary wood-using industry was comprised of 12 sawmills, 3 post mills, 2 cabin log mills, and 1 particleboard plant, the same number and distribution of mill types as in 1993 (table 1).
- Twelve of the State's primary wood-using mills are located in the Western Forest Survey Unit, which contains the majority of South Dakota's forest resources (fig. 1).
- In the Western Forest Survey Unit, one cabin log mill closed, one sawmill became inactive, and one sawmill opened between 1993 and 1999. In the Eastern Unit two new sawmills opened and one sawmill became inactive between surveys.

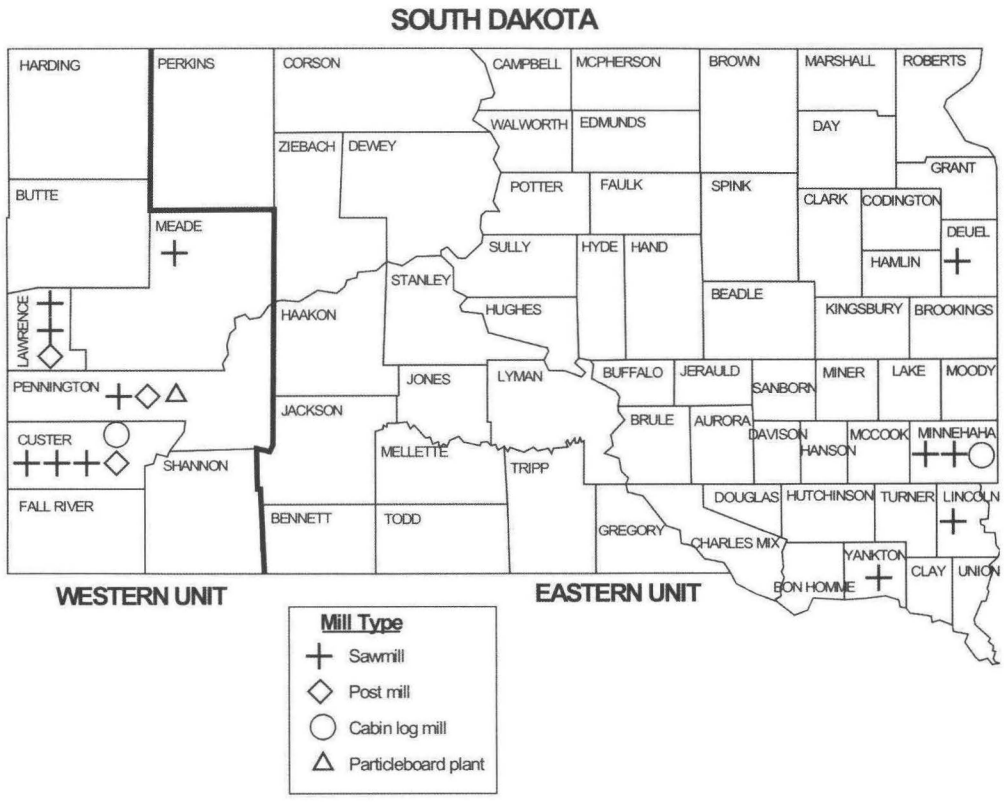

Figure 1.—*Forest Survey Units and location of wood-using mills in South Dakota, 1999.*

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- The primary wood-using mills in the Western Unit processed only softwood material in 1999, while the Eastern Unit's primary wood-using mills processed mainly hardwood species.

- Between surveys, industrial roundwood receipts in South Dakota increased by 4 percent to 20 million cubic feet (table 2).

- Softwoods, mainly ponderosa pine, made up almost 99 percent of the roundwood processed by the State's primary wood-using industry in 1999.

- In 1999, 19 million cubic feet of industrial roundwood was harvested from South Dakota's forest (table 3)—an increase of 11 percent from 1993. Industrial roundwood production of softwoods increased by almost 11 percent and hardwood production increased by 69 percent.

- Softwood species accounted for 98 percent of the industrial roundwood produced in 1999 (fig. 2).

- Ponderosa pine, at 18.6 million cubic feet, was the major species harvested in the State in 1999. Cottonwood was the second most harvested species, at only 309 thousand cubic feet.

- Saw log production in South Dakota increased from 99 million board feet in 1993 to 110 million board feet in 1999, an increase of 11 percent (table 4). The production of all the other roundwood products combined increased by 22 percent from 1993 to 1999.

- In 1999, the production of roundwood for saw logs made up 95 percent of the total industrial roundwood produced in South Dakota (fig. 3).

- Ninety-eight percent of the State's industrial roundwood production came from the Western Unit.

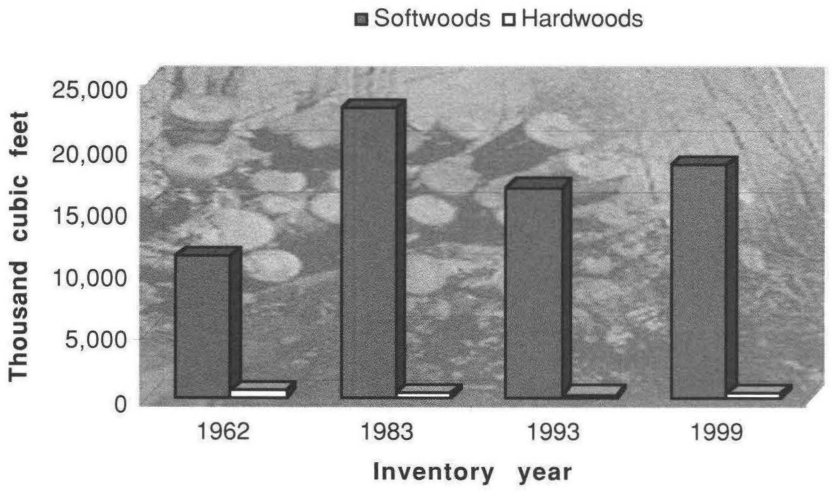

Figure 2.—*Industrial roundwood production by species group, South Dakota, 1962-1999.*

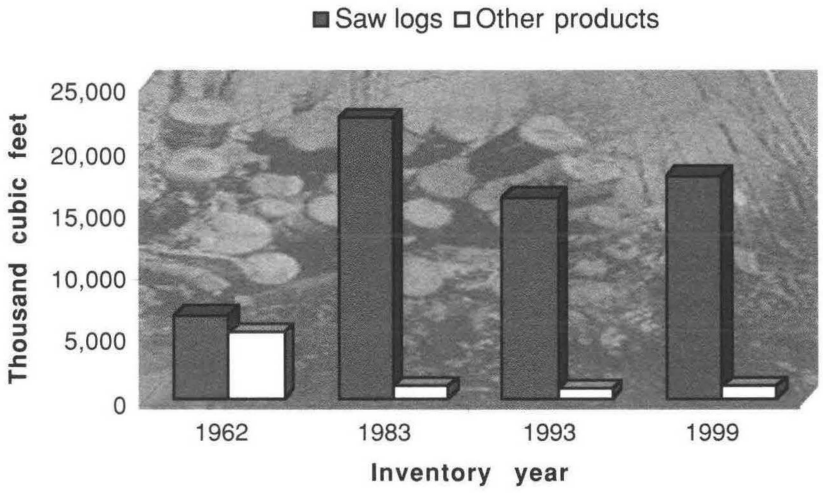

Figure 3.—*Industrial roundwood production by product, South Dakota, 1962-1999.*

SAW LOGS

- South Dakota's saw log receipts in 1999 were 4 percent higher than in 1993.

- !n 1999, 70 percent of the saw log receipts in South Dakota were harvested from the State. Wyoming supplied another 15 percent of the saw logs processed by South Dakota's sawmills. Iowa, Minnesota, Montana, and Nebraska supplied the rest of the roundwood processed by the State's sawmills (table 5).

- Sawmills within the State processed 72 percent of the saw logs harvested from South Dakota in 1999. Wyoming sawmills imported 27 percent of South Dakota's saw log production. Nebraska sawmills received the remaining 1 percent of saw logs harvested from South Dakota in 1999 (table 6).

- The Western Unit supplied 98 percent of the saw logs produced in South Dakota in 1999. All of the hardwood saw logs produced in the State came from the Eastern Unit (table 7).

- Ponderosa pine, cottonwood, ash, and black walnut saw log production increased between 1993 and 1999, while eastern redcedar, spruce and elm saw log production decreased.

OTHER PRODUCTS

- Pulp and particleboard plants consumed 4 percent of South Dakota's industrial roundwood production in 1999.
- Posts, poles, and cabin log mills received 1 percent of the volume of industrial roundwood harvested from the State in 1999.
- Ponderosa pine was the only species harvested from South Dakota that went into the production of pulp, particleboard, posts, poles, and cabin logs in 1999.

TIMBER REMOVALS

- In the production of industrial roundwood in 1999, nearly 20 million cubic feet of South Dakota's growing-stock inventory was removed from timberland, an 11-percent increase from 1993 (table 8).
- Seventy percent of the total wood material harvested from South Dakota's forests in 1999 was used for the production of primary wood products. The remainder was left on the ground as harvest residues (fig. 4).
- Dead trees accounted for 48 percent of the non-growing-stock sources of roundwood used for the production of primary wood products.
- Ninety-eight percent of the growing-stock removals came from the Western Forest Survey Unit (table 9).
- Softwoods accounted for 98 percent of all growing-stock removals.
- Industrial roundwood harvesting also removed 110 million board feet of wood from the sawtimber portion of the growing stock inventory in 1999 (table 10), an 11-percent increase from 1993.

HARVEST RESIDUES

- In 1999, harvesting of industrial roundwood products left 8 million cubic feet of harvest residues on the ground in South Dakota (table 11)—up 11 percent from 1993.
- Nearly all (98 percent) of the harvest residues produced in 1999 were produced in the Western Forest Survey Unit of South Dakota.
- Since ponderosa pine was the major species harvested in South Dakota in 1999, it makes up the majority of the harvest residue that was generated.

PRIMARY MILL RESIDUES

- In converting industrial roundwood into products such as lumber, wood pulp, poles and posts, and cabin logs, South Dakota's primary wood-using industry generated 281 thousand green tons of wood and bark residues (table 12).
- Fifty-four percent of the mill residues produced in 1999 was in the form of coarse wood residues, such as slabs and

Residential fuelwood is a major nonindustrial product in South Dakota. The results of a residential fuelwood study conducted in 1994 are available in "Residential Fuelwood Consumption and Production in South Dakota, 1994", RB-NC-171, by Dennis M. May. Publication available from the North Central Research Station or online at: http://www.ncrs.fs.fed.us

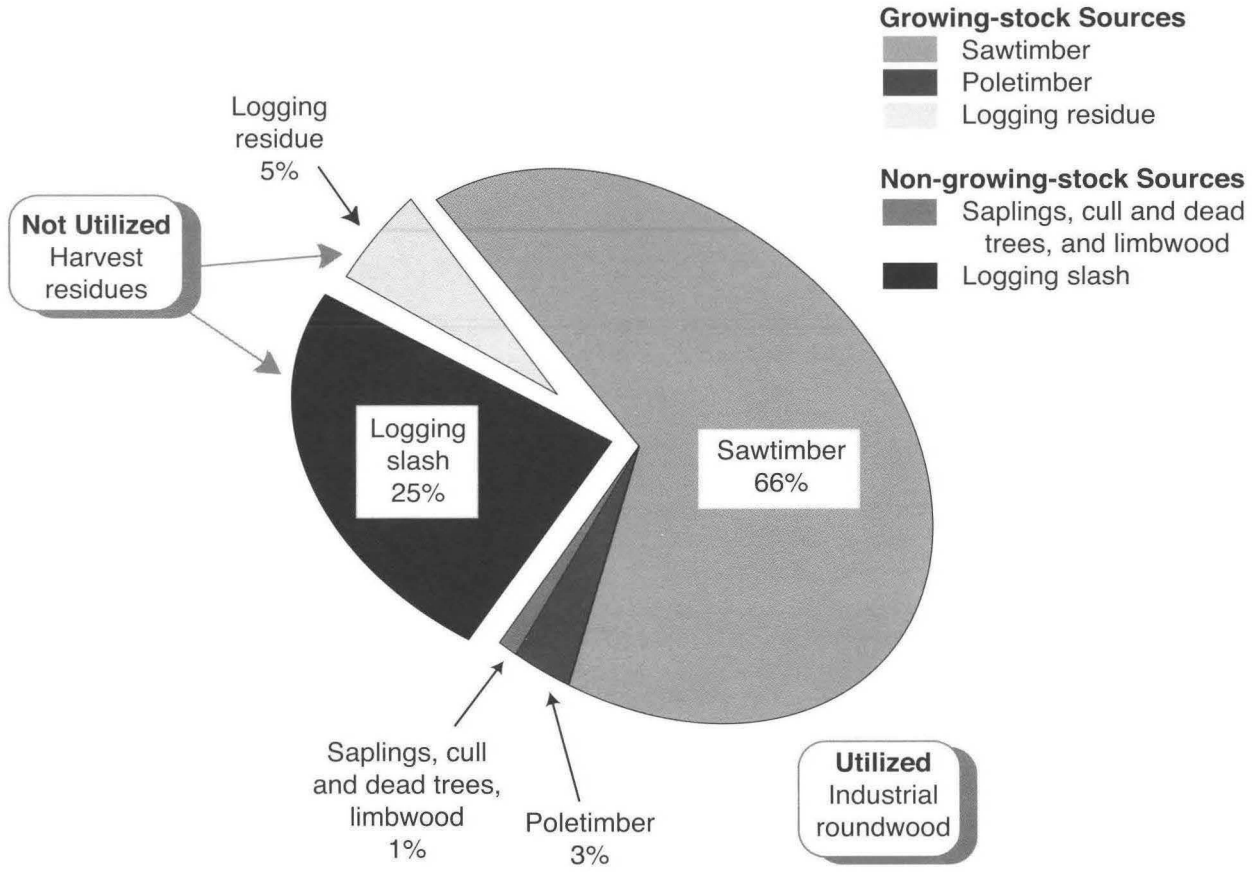

Figure 4.—Distribution of timber removals for industrial roundwood by source of material, South Dakota, 1999.

edgings, which are suitable for chipping. Bark residue made up another 25 percent of the mill residues produced, and fine residue accounted for the remaining 21 percent (fig. 5).

- Nearly all mill residues were used. The production of fiber products, such as pulp and particleboard, consumed 64 percent of the total residues produced by South Dakota's primary wood-using mills in 1999. Industrial and domestic fuel consumed another 19 percent of the mill residues produced (fig. 6).

- Over 85 percent of the wood residues were used for pulp or particleboard products. Ninety-six percent of the coarse wood residues and 55 percent of the fine wood residues were used for pulp or particleboard production.

- Most of the bark (95 percent) was burned as fuel or used for miscellaneous uses such as mulch or livestock bedding.

- In 1999, only 3 percent of the mill residues generated by South Dakota's primary wood-using mills remained unused. In 1993, 5 percent of the mill residues went unused.

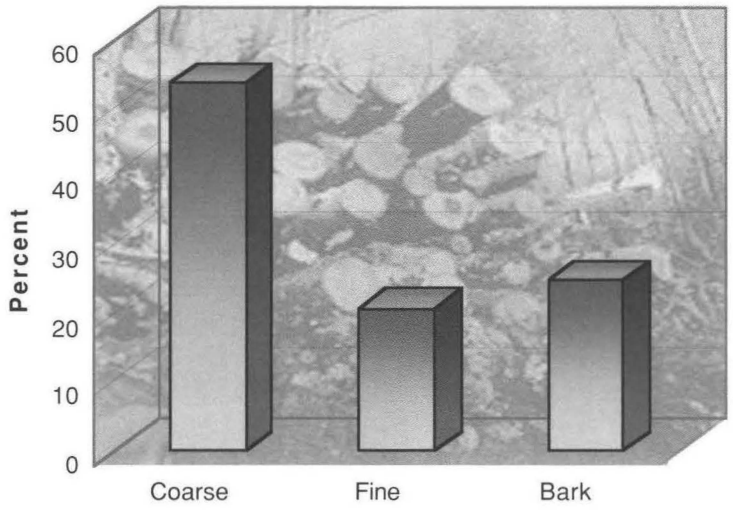

Figure 5.—Distribution of residues generated by primary wood-using mills by type of residue, South Dakota, 1999.

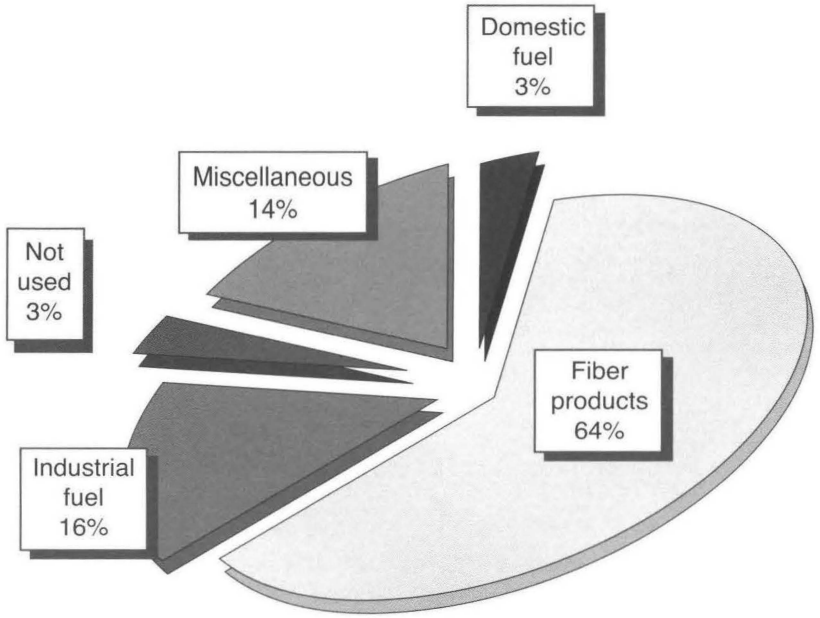

Figure 6.—Distribution of residues generated by primary wood-using mills by method of disposal, South Dakota, 1999.

APPENDIX

STUDY METHODS

This study was a cooperative effort of the South Dakota Department of Agriculture (SDDA) and the North Central Research Station (NCRS). Using mail questionnaires supplied by NCRS and designed to determine the size and composition of the State's primary wood-using industry, its use of roundwood, and its generation and disposition of wood residues, the SDDA canvassed all primary wood-using mills within the State. SDDA made followups to non-responding mills using additional mailings, telephone calls, and personal contacts until a 100-percent response was achieved. Completed questionnaires were sent to NCRS for editing and processing.

As part of data editing and processing, all industrial roundwood volumes reported on the questionnaires were converted to standard units of measure using regional conversion factors. Timber removals by source of material and harvest residues generated during logging were estimated from standard product volumes using factors developed from logging utilization studies previously conducted by NCRS. Finalized data on South Dakota's industrial roundwood receipts were loaded into a regional timber removals database where they were supplemented with data on out-of-State uses of South Dakota roundwood to provide a complete assessment of South Dakota's timber product output.

DEFINITION OF TERMS

Board foot

Unit of measure applied to roundwood. It relates to lumber that is 1 foot long, I foot wide, and 1 inch thick (or its equivalent).

Bolt

A short log no more than 8 feet long, to be sawn for lumber, peeled or sliced for veneer, shaved for excelsior, or converted into shingles, cooperage stock, dimension stock, blocks, blanks, etc.

Central stem

The portion of a tree between a 1-foot stump and the minimum 4.0-inch top diameter outside bark, or point where the central stem breaks into limbs.

Coarse mill residue

Wood residue suitable for chipping such as slabs, edgings, and veneer cores.

Commercial species

Tree species presently or prospectively suitable for industrial wood products. (Note: Excludes species of typically small size, poor form, or inferior quality such as hophornbeam, Osage-orange, and redbud.)

Cull removals

Net volume of rough and rotten trees plus the net volume in sections of the central stem of growing-stock trees that do not meet regional merchantability standards harvested for industrial roundwood products.

Cunit

A measurement of volume equal to 100 cubic feet.

Dead removals

Net volume of dead trees harvested for industrial roundwood products.

Diameter at breast height (d.b.h.)

The outside bark diameter at 4.5 feet above the forest floor on the uphill side of the tree. For determining breast height, the forest floor includes the duff layer that may be present, but does not include unincorporated woody debris that may rise above the ground line.

Fine mill residue

Wood residue not suitable for chipping such as sawdust and veneer clippings.

Forest land

Land at least 10 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use. (Note: Stocking is measured by comparing specified standards with basal area and /or number of trees, age or size, and spacing.) The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails, streams or other bodies of water, or clearings in forest areas shall be classed as forest if less than 120 feet wide.

Growing-stock removals

The growing-stock volume removed from the timberland inventory by harvesting industrial roundwood products. (Note: Includes sawtimber removals, poletimber removals, and logging residues.)

Growing-stock tree

A live timberland tree of commercial species that meets specified standards of size, quality, and merchantability. (Note: Excludes rough, rotten, and dead trees.)

Growing-stock volume

Net volume of growing-stock trees 5.0 inches d.b.h. and over, from 1 foot above the ground to a minimum 4.0-inch top diameter outside bark of the central stem or to the point where the central stem breaks into limbs.

Hardwoods

Dicotyledonous trees, usually broad-leaved and deciduous.

Harvest residues

The total net volume of unused portions of trees cut or killed by logging. (Note: Includes both logging residues and logging slash.)

Industrial fuelwood

A roundwood product, with or without bark, used to generate energy at manufacturing facilities and schools, correctional institutions, or electric generating plants.

Industrial roundwood exports

The quantity of industrial roundwood harvested in a geographical area and transported to other geographical areas.

Industrial roundwood imports

The quantity of industrial roundwood received from other geographical areas.

Industrial roundwood products

Saw logs, pulpwood, veneer logs, poles, commercial posts, pilings, cooperage logs, particleboard bolts, shaving bolts, lath bolts, charcoal bolts, and chips from roundwood used for pulp or board products.

Industrial roundwood production

The quantity of industrial roundwood harvested in a geographic area plus all industrial roundwood exported to other geographical areas.

Industrial roundwood receipts

The quantity of industrial roundwood received by commercial mills in a geographic area plus all industrial roundwood imported from other geographical areas.

Industrial roundwood retained

The quantity of industrial roundwood harvested from and processed by commercial mills within the same geographical area.

International 1/4-inch rule

A log rule or formula for estimating the board foot volume of logs, allowing 1/2-inch of taper for each 4-foot length. The rule appears in a number of forms that allow for kerf. In this form, 1/4-inch of kerf is assumed. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Limbwood removals

Net volume of all portions of a tree other than the central stem (including forks, large limbs, tops, and stumps) harvested for industrial roundwood products.

Logging residue
The net volume of unused portions of the merchantable central stem of growing-stock trees cut or killed by logging.

Logging slash
The net volume of unused portions of the unmerchantable (non-growing stock) sections of trees cut or killed by logging.

Merchantable sections
Refers to sections of the central stem of growing-stock trees that meet either pulpwood or saw log specifications.

Net volume
Gross volume less deductions for rot, sweep, or other defects affecting use for roundwood products.

Noncommercial species
Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial roundwood products. Classified in volume tables as rough trees.

Nonforest land
Land that has never supported forests, and land formerly forested where use for timber management is precluded by development for other uses. (Note: Includes areas used for crops, active Christmas tree plantations, orchards, nurseries, improved pasture, residential areas, city parks, improved roads of any width and adjoining clearings, powerline clearings of any width, and 1- to 39.9-acre areas of water classified by the Bureau of the Census as land.) If intermingled in forest areas, unimproved roads and nonforest strips must be more than 120 feet wide and more than 1 acre to qualify as nonforest land.

Nonforest land removals
Net volume of trees on nonforest lands harvested for industrial roundwood products.

Poletimber
A growing-stock tree at least 5.0 inches d.b.h. but smaller than sawtimber size (9.0 inches d.b.h. for softwoods, 11.0 inches d.b.h. for hardwoods).

Poletimber removals
Net volume in the merchantable central stem of poletimber trees harvested for industrial roundwood products.

Primary wood-using mills
Mills receiving roundwood or chips from roundwood for processing into products such as lumber, veneer, and pulp, etc.

Primary wood-using mill residue
Wood materials (coarse and fine) and bark generated at manufacturing plants that process industrial roundwood into principal products. These residues include wood products (byproducts) obtained incidental to production of principal products and wood materials not utilized for some product.

Rotten tree
A tree that does not meet regional merchantability standards because of excessive unsound cull.

Rough tree
A tree that does not meet regional merchantability standards because of excessive sound cull. Includes noncommercial tree species.

Roundwood
Logs, bolts, or other round sections cut from trees (including chips from roundwood).

Sapling
A live tree between 1.0 and 5.0 inches d.b.h.

Sapling removals
Net volume in saplings harvested for industrial roundwood products.

Saw log portion
That portion of the central stem of sawtimber trees between the stump and the saw log top.

Saw log top
The point on the central stem of sawtimber trees above which a saw log cannot be produced. The minimum saw log top is 7.0 inches diameter outside bark for softwoods and 9.0 inches diameter outside bark for hardwoods.

Sawtimber removals
As used in table 8, sawtimber removals refers to the net volume in the merchantable central stem of sawtimber trees harvested for industrial roundwood products. (Note: Includes the saw log and upper stem portions of sawtimber trees.) When referring to the sawtimber volume removed from the timberland inventory as in table 10,

sawtimber removals refers to the net volume in the saw log portion of sawtimber trees harvested for roundwood products or left on the ground as harvest residue, and is usually expressed in thousands of board feet (International 1/4-inch rule).

Sawtimber tree

A growing-stock tree containing at least a 12-foot saw log or two noncontiguous saw logs 8 feet or longer, and meeting regional specifications for freedom from defect. Softwoods must be at least 9.0 inches d.b.h. and hardwoods must be at least 11.0 inches d.b.h.

Sawtimber volume

Net volume in the saw log portion of sawtimber trees.

Softwoods

Coniferous trees, usually evergreen, having needles or scale-like leaves.

Timber product output

The volume of roundwood products produced from an area's forests.

Timberland

Forest land that is producing, or is capable of producing, in excess of 20 cubic feet per acre per year of industrial roundwood products under natural conditions, is not withdrawn from timber utilization by statute or administrative regulation, and is not associated with urban or rural development.

Tree

A woody plant usually having one or more perennial stems, a more or less definitely formed crown of foliage, and a height of at least 12 feet at maturity.

Upper stem portion

That portion of the central stem of sawtimber trees between the saw log top and the minimum top diameter of 4.0 inches outside bark, or to the point where the central stem breaks into limbs.

COMMON AND SCIENTIFIC NAMES OF TREE SPECIES MENTIONED IN THIS REPORT

SOFTWOODS

Eastern redcedar ..... *Juniperus virginiana*
Spruce
- White spruce ..... *Picea glauca*
- Englemann spruce ..... *Picea engelmannii*
- Black spruce ..... *Picea mariana*

Lodgepole pine ..... *Pinus contorta*
Ponderosa pine ..... *Pinus ponderosa*
Red pine ..... *Pinus resinosa*
Douglas-fir ..... *Pseudotsuga menziesii*

HARDWOODS

Soft maple
- Boxelder ..... *Acer negundo*
- Red maple ..... *Acer rubrum*
- Silver maple ..... *Acer saccharinum*

Northern catalpa ..... *Catalpa speciosa*
Hackberry ..... *Celtis occidentalis*
Ash
- Black ash ..... *Fraxinus nigra*
- White ash ..... *Fraxinus americana*
- Green ash ..... *Fraxinus pennsylvanica*

Honeylocust ..... *Gleditsia triacanthos*
Black walnut ..... *Juglans nigra*
Cottonwood
- Eastern cottonwood ..... *Populus deltoides*
- Plains cottonwood ..... *Populus sargentii*

White oak group
- White oak ..... *Quercus alba*
- Bur oak ..... *Quercus macrocarpa*

Red oak group
- Northern red oak ..... *Quercus rubra*
- Black oak ..... *Quercus velutina*
- Northern pin oak ..... *Quercus ellipsoidalis*

American basswood ..... *Tilia americana*
Elm
- American elm ..... *Ulmus americana*
- Slippery elm ..... *Ulmus rubra*

TABLE TITLES

Table 1.—*Number of active primary wood-using mills by mill type, South Dakota, 1993 and 1999*

Table 2.—*Industrial roundwood receipts by species group and State of origin, South Dakota, 1999*

Table 3.—*Industrial roundwood production by Forest Survey Unit, species group, and type of product, South Dakota, 1999*

Table 4.—*Saw log production and receipts by species group, South Dakota, 1993 and 1999*

Table 5.—*Saw log receipts by Forest Survey Unit, species group, and State of origin, South Dakota, 1999 (In thousand board feet International 1/4-inch rule)*

Table 5a.—*Saw log receipts by Forest Survey Unit, species group, and State of origin, South Dakota, 1999 (In cunits)*

Table 6.—*Saw log production by Forest Survey Unit, species group, and destination, South Dakota, 1999 (In thousand board feet International 1/4-inch rule)*

Table 6a.—*Saw log production by Forest Survey Unit, species group, and destination, South Dakota, 1999 (In cunits)*

Table 7.—*Saw log production by Forest Survey Unit, county, and species group, South Dakota, 1999 (In thousand board feet International 1/4-inch rule)*

Table 7a.—*Saw log production by Forest Survey Unit, county, and species group, South Dakota, 1999 (In cunits)*

Table 8.—*Timber removals for industrial roundwood by Forest Survey Unit, species group, and source of material, South Dakota, 1999*

Table 9.—*Growing-stock removals from timberland for industrial roundwood production by Forest Survey Unit, county, and species group, South Dakota, 1999*

Table 10.—*Sawtimber removals from timberland for industrial roundwood production by Forest Survey Unit, county, and species group, South Dakota, 1999*

Table 11.—*Harvest residues generated by industrial roundwood harvesting by Forest Survey Unit, county, and species group, South Dakota, 1999*

Table 12.—*Residues produced at primary wood-using mills by Forest Survey Unit, type of use, and residue type, South Dakota, 1999*

Table 13.—*Annual mill capacity of active wood-using mills by mill type, mill name, and county, South Dakota, 1999*

TABLES

Table 1.--Number of active primary wood-using mills by mill type, South Dakota, 1993 and 1999

Kind of mill	1993	1999
Sawmills		
Large[1]	3	3
Medium[2]	3	3
Small[3]	6	6
Total	12	12
Other mills[4]	6	6
Total mills	18	18

[1] *Annual lumber production in excess of 5 million board feet.*

[2] *Annual lumber production from 1 million to 5 million board feet.*

[3] *Annual lumber production less than 1 million board feet.*

[4] *Includes particleboard, cabin logs, and post and pole mills.*

Table 2.--Industrial roundwood receipts by species group and State of origin, South Dakota, 1999

(In thousand cubic feet)

Species group	Total	State of origin					
		Iowa	Minnesota	Montana	Nebraska	South Dakota	Wyoming
Softwoods							
Eastern redcedar	1	–	–	–	*	*	–
Spruce	19	*	*	–	–	18	1
Lodgepole pine	86	–	–	–	–	–	86
Ponderosa pine	19,294	–	–	1,166	1,515	13,808	2,805
Red pine	*	*	*	–	–	–	–
Douglas-fir	2	–	–	–	–	–	2
Total	19,402	*	*	1,166	1,515	13,827	2,894
Hardwoods							
Soft maple	*	–	*	–	–	*	–
Hackberry	*	–	–	–	–	*	–
Ash	6	*	1	–	–	5	–
Honeylocust	*	–	–	–	–	*	–
Black walnut	5	1	*	–	–	3	–
Cottonwood	227	3	4	–	45	176	–
Red oak group	5	–	–	–	5	*	–
White oak group	*	–	–	–		*	–
Basswood	*	–	*	–	–	–	–
Elm	1	*	*	–	–	*	–
Northern catalpa	*	*	–	–	–	–	–
Total	244	5	5	–	50	185	–
All species	19,647	5	5	1,166	1,565	14,011	2,894

* *Less than 500 cubic feet.*

Rows and columns may not sum due to rounding.

Table 3.--Industrial roundwood production by Forest Survey Unit, species group, and type of product, South Dakota, 1999[1]

ALL UNITS

Species group	All products	Type of product								
		Saw logs		Pulpwood		Poles		Posts		Cabin logs
	MCF[3]	MBF[2]	MCF[3]	Cords[4]	MCF[3]	Pieces	MCF[3]	M pieces[5]	MCF[3]	MCF[3]
Softwood										
Eastern redcedar	*	1	*	–	–	–	–	–	–	–
Spruce	59	309	59	–	–	–	–	–	–	–
Ponderosa pine	18,561	107,656	17,548	10,800	810	12,076	36	244	158	9
Total	18,621	107,967	17,608	10,800	810	12,076	36	244	158	9
Hardwoods										
Soft maple	*	*	*	–	–	–	–	–	–	–
Hackberry	*	1	*	–	–	–	–	–	–	–
Ash	5	31	5	–	–	–	–	–	–	–
Honeylocust	*	1	*	–	–	–	–	–	–	–
Black walnut	3	18	3	–	–	–	–	–	–	–
Cottonwood	309	1,757	309	–	–	–	–	–	–	–
Bur oak	*	1	*	–	–	–	–	–	–	–
Elm	*	2	*	–	–	–	–	–	–	–
Total	318	1,811	318	–	–	–	–	–	–	–
All species	18,939	109,777	17,926	10,800	810	12,076	36	244	158	9

EASTERN UNIT

Softwoods										
Eastern redcedar	*	1	*	–	–	–	–	–	–	–
Spruce	*	1	*	–	–	–	–	–	–	–
Ponderosa pine	*	2	*	–	–	–	–	–	–	–
Total	1	4	1	–	–	–	–	–	–	–
Hardwoods										
Soft maple	*	*	*	–	–	–	–	–	–	–
Hackberry	*	1	*	–	–	–	–	–	–	–
Ash	5	31	5	–	–	–	–	–	–	–
Honeylocust	*	1	*	–	–	–	–	–	–	–
Black walnut	3	18	3	–	–	–	–	–	–	–
Cottonwood	309	1,757	309	–	–	–	–	–	–	–
Bur oak	*	1	*	–	–	–	–	–	–	–
Elm	*	2	*	–	–	–	–	–	–	–
Total	318	1,811	318	–	–	–	–	–	–	–
All species	319	1,815	319	–	–	–	–	–	–	–

WESTERN UNIT

Softwoods										
Spruce	59	308	59	–	–	–	–	–	–	–
Ponderosa pine	18,561	107,654	17,548	10,800	810	12,076	36	244	158	9
Total	18,620	107,962	17,607	10,800	810	12,076	36	244	158	9
All species	18,620	107,962	17,607	10,800	810	12,076	36	244	158	9

* *Less than 1/2 unit of measure.*

[1] *Based on factors obtained from regional utilization studies.*

[2] *Thousand board feet, International 1/4-inch rule.*

[3] *Thousand cubic feet.*

[4] *Standard cords are 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

[5] *Thousand pieces.*

Rows and columns may not sum due to rounding.

Table 4.--Saw log production and receipts by species group, South Dakota, 1993 and 1999

(In thousand board feet)[1]

Species group	Production			Receipts		
	1993	1999	Change	1993	1999	Change
Softwoods						
Eastern redcedar	20	1	-19	20	1	-19
Spruce	344	309	-35	128	94	-34
Ponderosa pine	97,787	107,656	9,869	109,089	112,351	3,262
Red pine	–	–	–	–	*	*
Total	98,151	107,967	9,816	109,237	112,446	3,209
Hardwoods						
Soft maple	–	*	*	–	1	1
Hackberry	–	1	1	–	1	1
Ash	14	31	17	14	38	24
Honeylocust	–	1	1	–	1	1
Black walnut	–	18	18	–	25	25
Cottonwood	1,020	1,757	737	386	1,333	947
Red oak group	–	–	–	–	28	25
White oak group	–	1	1	–	1	1
Basswood	–	–	–	–	1	1
Elm	32	2	-30	32	3	-29
Northern catalpa	–	–	–	–	1	1
Total	1,066	1,811	745	432	1,432	1,000
All species	99,217	109,777	10,560	109,669	113,878	4,209

* *Less than 500 board feet.*

[1] *International 1/4-inch rule.*

Rows and columns may not sum due to rounding.

Table 5.--Saw log receipts by Forest Survey Unit, species group, and State of origin, South Dakota, 1999

(In thousand board feet)[1]

ALL UNITS

Species group	All States	State of origin					
		Iowa	Minnesota	Montana	Nebraska	South Dakota	Wyoming
Softwoods							
Eastern redcedar	1	–	–	–	–	1	–
Spruce	94	*	*	–	–	93	–
Ponderosa pine	112,351	–	–	7,383	8,720	78,496	17,752
Red pine	*	*	*	–	–	–	–
Total	112,446	*	*	7,383	8,720	78,591	17,752
Hardwoods							
Soft maple	1	–	1	–	–	*	–
Hackberry	1	–	–	–	–	1	–
Ash	38	2	4	–	–	31	–
Honeylocust	1	–	–	–	–	1	–
Black walnut	25	4	3	–	–	18	–
Cottonwood	1,333	23	23	–	290	998	–
Red oak group	28	–	–	–	28	–	–
White oak group	1	–	–	–	–	1	–
Basswood	1	–	1	–	–	–	–
Elm	3	*	1	–	–	2	–
Northern catalpa	1	1	–	–	–	–	–
Total	1,432	30	33	–	317	1,052	–
All species	113,878	31	33	7,383	9,037	79,642	17,752

EASTERN UNIT

Softwoods							
Eastern redcedar	1	–	–	–	–	1	–
Spruce	2	*	*	–	–	1	–
Ponderosa pine	2	–	–	–	–	2	–
Red pine	*	*	*	–	–	–	–
Total	5	*	*	–	–	4	–

Hardwoods							
Soft maple	1	–	1	–	–	*	–
Hackberry	1	–	–	–	–	1	–
Ash	38	2	4	–	–	31	–
Honeylocust	1	–	–	–	–	1	–
Black walnut	25	4	3	–	–	18	–
Cottonwood	1,333	23	23	–	290	998	–
Red oak group	28	–	–	–	28	–	–
White oak group	1	–	–	–	–	1	–
Basswood	1	–	1	–	–	–	–
Elm	3	*	1	–	–	2	–
Northern catalpa	1	1	–	–	–	–	–
Total	1,432	30	33	–	317	1,052	–
All species	1,437	31	33	–	317	1,056	–

WESTERN UNIT

Softwoods							
Spruce	92	–	–	–	–	92	–
Ponderosa pine	112,349	–	–	7,383	8,720	78,494	17,752
Total	112,441	–	–	7,383	8,720	78,586	17,752
All species	112,441	–	–	7,383	8,720	78,586	17,752

* *Less than 500 board feet.*

[1] *International 1/4-inch rule.*

Rows and columns may not sum due to rounding.

Table 5a.--Saw log receipts by Forest Survey Unit, species group, and State of origin, South Dakota, 1999

(In cunits)[1]

ALL UNITS

Species group	All States	State of origin					
		Iowa	Minnesota	Montana	Nebraska	South Dakota	Wyoming
Softwoods							
Eastern redcedar	2	–	–	–	–	2	–
Spruce	180	*	*	–	–	179	–
Ponderosa pine	182,808	–	–	11,665	15,147	127,949	28,048
Red pine	1	*	*	–	–	–	–
Total	182,991	1	1	11,665	15,147	128,130	28,048
Hardwoods							
Soft maple	2	–	1	–	–	1	–
Hackberry	1	–	–	–	–	1	–
Ash	64	4	7	–	–	53	–
Honeylocust	1	–	–	–	–	1	–
Black walnut	45	9	4	–	–	32	–
Cottonwood	2,272	32	37	–	447	1,756	–
Red oak group	49	–	–	–	49	–	–
White oak group	2	–	–	–	–	2	–
Basswood	2	–	2	–	–	–	–
Elm	6	*	2	–	–	3	–
Northern catalpa	1	1	–	–	–	–	–
Total	2,445	47	54	–	496	1,848	–
All species	185,436	47	54	11,665	15,643	129,978	28,048

EASTERN UNIT

Softwoods							
Eastern redcedar	2	–	–	–	–	2	–
Spruce	3	*	*	–	–	2	–
Ponderosa pine	4	–	–	–	–	4	–
Red pine	1	*	*	–	–	–	–
Total	10	1	1	–	–	8	–

Hardwoods							
Soft maple	2	–	1	–	–	1	–
Hackberry	1	–	–	–	–	1	–
Ash	64	4	7	–	–	53	–
Honeylocust	1	–	–	–	–	1	–
Black walnut	45	9	4	–	–	32	–
Cottonwood	2,272	32	37	–	447	1,756	–
Red oak group	49	–	–	–	49	–	–
White oak group	2	–	–	–	–	2	–
Basswood	2	–	2	–	–	–	–
Elm	6	*	2	–	–	3	–
Northern catalpa	1	1	–	–	–	–	–
Total	2,445	47	54	–	496	1,848	–
All species	2,455	47	54	–	496	1,856	–

WESTERN UNIT

Softwoods							
Spruce	177	–	–	–	–	177	–
Ponderosa pine	182,805	–	–	11,665	15,147	127,945	28,048
Total	182,982	–	–	11,665	15,147	128,122	28,048
All species	182,982	–	–	11,665	15,147	128,122	28,048

* *Less than 50 cubic feet.*

[1] *100 cubic feet.*

Rows and columns may not sum due to rounding.

Table 6.--Saw log production by Forest Survey Unit, species group, and destination, South Dakota, 1999

(In thousand board feet)[1]

ALL UNITS

Species group	Total	Destination		
		Nebraska	South Dakota	Wyoming
Softwoods				
Eastern redcedar	1	–	1	–
Spruce	309	–	93	216
Ponderosa pine	107,656	–	78,496	29,160
Total	107,967	–	78,591	29,376
Hardwoods				
Soft maple	*	–	*	–
Hackberry	1	–	1	–
Ash	31	–	31	–
Honeylocust	1	–	1	–
Black walnut	18	–	18	–
Cottonwood	1,757	759	998	–
Bur oak	1	–	1	–
Elm	2	–	2	–
Total	1,811	759	1,052	–
All species	109,777	759	79,642	29,376

EASTERN UNIT

Softwoods				
Eastern redcedar	1	–	1	–
Spruce	1	–	1	–
Ponderosa pine	2	–	2	–
Total	4	–	4	–
Hardwoods				
Soft maple	*	–	*	–
Hackberry	1	–	1	–
Ash	31	–	31	–
Honeylocust	1	–	1	–
Black walnut	18	–	18	–
Cottonwood	1,757	759	998	–
Bur oak	1	–	1	–
Elm	2	–	2	–
Total	1,811	759	1,052	–
All species	1,815	759	1,056	–

WESTERN UNIT

Softwoods				
Spruce	308	–	92	216
Ponderosa pine	107,654	–	78,494	29,160
Total	107,962	–	78,586	29,376
All species	107,962	–	78,586	29,376

* *Less than 500 board feet.*

[1] *International 1/4-inch rule.*

Rows and columns may not sum due to rounding.

Table 6a.--Saw log production by Forest Survey Unit, species group, and destination, South Dakota, 1999

(In cunits)[1]

ALL UNITS

Species group	Total	Destination		
		Nebraska	South Dakota	Wyoming
Softwoods				
Eastern redcedar	2	–	2	–
Spruce	594	–	179	415
Ponderosa pine	175,480	–	127,949	47,531
Total	176,076	–	128,130	47,946
Hardwoods				
Soft maple	1	–	1	–
Hackberry	1	–	1	–
Ash	53	–	53	–
Honeylocust	1	–	1	–
Black walnut	32	–	32	–
Cottonwood	3,091	1,336	1,756	–
Bur oak	2	–	2	–
Elm	3	–	3	–
Total	3,184	1,336	1,848	–
All species	179,260	1,336	129,978	47,946

EASTERN UNIT

Softwoods				
Eastern redcedar	2	–	2	–
Spruce	2	–	2	–
Ponderosa pine	4	–	4	–
Total	8	–	8	–
Hardwoods				
Soft maple	1	–	1	–
Hackberry	1	–	1	–
Ash	53	–	53	–
Honeylocust	1	–	1	–
Black walnut	32	–	32	–
Cottonwood	3,091	1,336	1,756	–
Bur oak	2	–	2	–
Elm	3	–	3	–
Total	3,184	1,336	1,848	–
All species	3,192	1,336	1,856	–

WESTERN UNIT

Softwoods				
Spruce	592	–	177	415
Ponderosa pine	175,476	–	127,945	47,531
Total	176,068	–	128,122	47,946
All species	176,068	–	128,122	47,946

[1] *100 cubic feet.*

Rows and columns may not sum due to rounding.

Table 7.--Saw log production by Forest Survey Unit, county, and species group, South Dakota, 1999

(In thousand board feet)[1]

Forest Survey Unit and county	All species	Species group: Softwoods: Eastern redcedar	Softwoods: Spruce	Softwoods: Ponderosa pine	Softwoods: Total softwoods	Hardwoods: Soft maple	Hardwoods: Hackberry	Hardwoods: Ash	Hardwoods: Honeylocust	Hardwoods: Black walnut	Hardwoods: Cottonwood	Hardwoods: Bur oak	Hardwoods: Elm	Hardwoods: Total hardwoods
Eastern Unit														
Bon Homme	28	–	–	–	–	–	–	–	–	–	28	–	–	28
Clay	345	–	–	–	–	–	–	–	–	–	345	–	–	345
Deuel	15	–	–	–	–	–	–	–	–	1	14	–	–	15
Douglas	248	–	–	–	–	–	–	–	–	–	248	–	–	248
Hutchinson	48	–	–	–	–	–	–	–	–	–	48	–	–	48
Lincoln	292	–	*	*	*	–	–	*	–	–	291	–	*	292
Minnehaha	271	1	1	2	4	*	1	31	1	17	215	1	1	267
Moody	16	–	*	*	*	–	–	*	–	–	15	–	*	16
Yankton	552	–	–	–	–	–	–	–	–	–	552	–	–	552
Total	1,815	1	1	2	4	*	1	31	1	18	1,757	1	2	1,811
Western Unit														
Custer	20,231	–	92	20,139	20,231	–	–	–	–	–	–	–	–	–
Fall River	2,361	–	–	2,361	2,361	–	–	–	–	–	–	–	–	–
Lawrence	43,271	–	108	43,163	43,271	–	–	–	–	–	–	–	–	–
Meade	3,918	–	–	3,918	3,918	–	–	–	–	–	–	–	–	–
Pennington	38,180	–	108	38,072	38,180	–	–	–	–	–	–	–	–	–
Total	107,962	–	308	107,654	107,962	–	–	–	–	–	–	–	–	–
State total	109,777	1	309	107,656	107,967	*	1	31	1	18	1,757	1	2	1,811

* *Less than 500 board feet.*

[1] *International 1/4-inch rule.*

Rows and columns may not sum due to rounding.

Table 7a.--Saw log production by Forest Survey Unit, county, and species group, South Dakota, 1999

(In cunits)[1]

Forest Survey Unit and county	All species	Species group												
		Softwoods				Hardwoods								
		Eastern redcedar	Spruce	Ponderosa pine	Total softwoods	Soft maple	Hackberry	Ash	Honeylocust	Black walnut	Cottonwood	Bur oak	Elm	Total hardwoods
Eastern Unit														
Bon Homme	49	–	–	–	–	–	–	–	–	–	49	–	–	49
Clay	607	–	–	–	–	–	–	–	–	–	607	–	–	607
Deuel	27	–	–	–	–	–	–	–	–	2	24	–	–	27
Douglas	437	–	–	–	–	–	–	–	–	–	437	–	–	437
Hutchinson	85	–	–	–	–	–	–	–	–	–	85	–	–	85
Lincoln	514	–	*	*	1	–	–	1	–	–	513	–	*	513
Minnehaha	474	2	2	3	7	1	1	51	1	30	378	2	2	467
Moody	28	–	*	*	1	–	–	1	–	–	27	–	*	28
Yankton	972	–	–	–	–	–	–	–	–	–	972	–	–	972
Total	3,192	2	2	4	8	1	1	53	1	32	3,091	2	3	3,184
Western Unit														
Custer	33,004	–	177	32,827	33,004	–	–	–	–	–	–	–	–	–
Fall River	3,849	–	–	3,849	3,849	–	–	–	–	–	–	–	–	–
Lawrence	70,563	–	207	70,356	70,563	–	–	–	–	–	–	–	–	–
Meade	6,386	–	–	6,386	6,386	–	–	–	–	–	–	–	–	–
Pennington	62,265	–	207	62,058	62,265	–	–	–	–	–	–	–	–	–
Total	176,068	–	592	175,476	176,068	–	–	–	–	–	–	–	–	–
State total	179,260	2	594	175,480	176,076	1	1	53	1	32	3,091	2	3	3,184

* *Less than 50 cubic feet.*

[1] *100 cubic feet.*

Rows and columns may not sum due to rounding.

Table 8.--Timber removals for industrial roundwood by Forest Survey Unit, species group, and source of material, South Dakota, 1999[1]

(In thousand cubic feet)

ALL UNITS

Species group	Growing stock				Non-growing stock							Total material used for products	Harvest residue (total not used)	Total material harvested
	Used for products		Logging residue (not used)	Total growing stock	Used for products					Logging slash (not used)	Total non-growing stock			
	Saw-timber	Pole-timber			Limbwood	Saplings	Cull trees	Dead trees	Nonforest trees					
Softwoods														
Eastern redcedar	0.2	*	*	0.2	*	–	*	–	–	*	*	0.2	*	0.2
Spruce	55.2	1.9	1.7	58.8	2.3	–	*	–	–	12.2	14.6	59.4	13.9	73.3
Ponderosa pine	17,360.1	837.6	1,392.0	19,589.8	–	40.2	–	183.1	140.4	6,416.3	6,780.0	18,561.5	7,808.3	26,369.8
Total	17,415.6	839.5	1,393.7	19,648.7	2.3	40.2	*	183.1	140.4	6,428.6	6,794.6	18,621.1	7,822.3	26,443.4
Hardwoods														
Soft maple	0.1	*	*	0.1	*	–	*	–	–	*	*	0.1	*	0.1
Hackberry	0.1	*	*	0.1	*	–	*	–	–	*	*	0.1	*	0.1
Ash	5.1	*	0.7	5.8	*	–	0.1	–	–	1.3	1.4	5.3	2.0	7.3
Honeylocust	0.1	*	*	0.1	*	–	*	–	–	*	*	0.1	0.1	0.2
Black walnut	2.9	0.2	0.6	3.7	0.1	–	0.1	–	–	1.2	1.3	3.2	1.8	5.0
Cottonwood	276.8	17.9	59.0	353.8	8.3	–	6.1	–	–	110.3	124.7	309.1	169.3	478.5
Bur oak	0.2	*	*	0.2	*	–	*	–	–	*	0.1	0.2	0.1	0.3
Elm	0.3	*	0.1	0.3	*	–	*	–	–	0.1	0.1	0.3	0.2	0.4
Total	285.5	18.1	60.5	364.2	8.4	–	6.3	–	–	113.0	127.7	318.4	173.5	491.9
All species	17,701.1	857.6	1,454.2	20,012.9	10.7	40.2	6.4	183.1	140.4	6,541.6	6,922.4	18,939.5	7,995.8	26,935.3

EASTERN UNIT

Softwoods														
Eastern redcedar	0.2	*	*	0.2	*	–	*	–	–	*	*	0.2	*	0.2
Spruce	0.2	*	*	0.2	*	–	*	–	–	*	0.1	0.2	0.1	0.3
Ponderosa pine	0.4	*	*	0.4	–	–	–	*	–	0.1	0.1	0.4	0.2	0.5
Total	0.7	*	*	0.8	*	–	*	*	–	0.2	0.2	0.8	0.3	1.0
Hardwoods														
Soft maple	0.1	*	*	0.1	*	–	*	–	–	*	*	0.1	*	0.1
Hackberry	0.1	*	*	0.1	*	–	*	–	–	*	*	0.1	*	0.1
Ash	5.1	*	0.7	5.8	*	–	0.1	–	–	1.3	1.4	5.3	2.0	7.3
Honeylocust	0.1	*	*	0.1	*	–	*	–	–	*	*	0.1	0.1	0.2
Black walnut	2.9	0.2	0.6	3.7	0.1	–	0.1	–	–	1.2	1.3	3.2	1.8	5.0
Cottonwood	276.8	17.9	59.0	353.8	8.3	–	6.1	–	–	110.3	124.7	309.1	169.3	478.5
Bur oak	0.2	*	*	0.2	*	–	*	–	–	*	0.1	0.2	0.1	0.3
Elm	0.3	*	0.1	0.3	*	–	*	–	–	0.1	0.1	0.3	0.2	0.4
Total	285.5	18.1	60.5	364.2	8.4	–	6.3	–	–	113.0	127.7	318.4	173.5	491.9
All species	286.3	18.2	60.6	365.0	8.4	–	6.3	*	–	113.2	128.0	319.2	173.8	493.0

WESTERN UNIT

Softwoods														
Spruce	55.0	1.8	1.7	58.6	2.3	–	*	–	–	12.2	14.5	59.2	13.9	73.1
Ponderosa pine	17,359.8	837.6	1,392.0	19,589.4	–	40.2	–	183.1	140.4	6,416.2	6,779.9	18,561.1	7,808.1	26,369.2
Total	17,414.8	839.5	1,393.7	19,647.9	2.3	40.2	*	183.1	140.4	6,428.4	6,794.4	18,620.3	7,822.0	26,442.3
All species	17,414.8	839.5	1,393.7	19,647.9	2.3	40.2	*	183.1	140.4	6,428.4	6,794.4	18,620.3	7,822.0	26,442.3

** Less than 50 cubic feet.*

[1] *Based on factors obtained from regional utilization studies.*

Rows and columns may not sum due to rounding.

Table 9.--Growing-stock removals from timberland for industrial roundwood production by Forest Survey Unit, county, and species group, South Dakota, 1999

(In thousnad cubic feet)

Forest Survey Unit and county	All species	Species group												
		Softwoods				Hardwoods								
		Eastern redcedar	Spruce	Ponderosa pine	Total softwoods	Soft maple	Hackberry	Ash	Honeylocust	Black walnut	Cottonwood	Bur oak	Elm	Total hardwoods
Eastern Unit														
Bon Homme	6	–	–	–	–	–	–	–	–	–	6	–	–	6
Clay	69	–	–	–	–	–	–	–	–	–	69	–	–	69
Deuel	3	–	–	–	–	–	–	–	–	*	3	–	–	3
Douglas	50	–	–	–	–	–	–	–	–	–	50	–	–	50
Hutchinson	10	–	–	–	–	–	–	–	–	–	10	–	–	10
Lincoln	59	–	*	*	*	–	–	*	–	–	59	–	*	59
Minnehaha	54	*	*	*	1	*	*	6	*	3	43	*	*	53
Moody	3	–	*	*	*	–	–	*	–	–	3	–	*	3
Yankton	111	–	–	–	–	–	–	–	–	–	111	–	–	111
Total	365	*	*	*	1	*	*	6	*	4	354	*	*	364
Western Unit														
Custer	3,749	–	18	3,731	3,749	–	–	–	–	–	–	–	–	–
Fall River	413	–	–	413	413	–	–	–	–	–	–	–	–	–
Lawrence	7,801	–	21	7,781	7,801	–	–	–	–	–	–	–	–	–
Meade	753	–	–	753	753	–	–	–	–	–	–	–	–	–
Pennington	6,932	–	21	6,912	6,932	–	–	–	–	–	–	–	–	–
Total	19,648	–	59	19,589	19,648	–	–	–	–	–	–	–	–	–
State total	20,013	*	59	19,590	19,649	*	*	6	*	4	354	*	*	364

* *Less than 500 cubic feet.*

Rows and columns may not sum due to rounding.

Table 10.--Sawtimber removals from timberland for industrial roundwood production by Forest Survey Unit, county, and species group, South Dakota, 1999

(In thousand board feet)[1]

Forest Survey Unit and county	All species	Species group												
		Softwoods				Hardwoods								
		Eastern redcedar	Spruce	Ponderosa pine	Total softwoods	Soft maple	Hackberry	Ash	Honeylocust	Black walnut	Cottonwood	Bur oak	Elm	Total hardwoods
Eastern Unit														
Bon Homme	28	–	–	–	–	–	–	–	–	–	28	–	–	28
Clay	346	–	–	–	–	–	–	–	–	–	346	–	–	346
Deuel	15	–	–	–	–	–	–	–	–	1	14	–	–	15
Douglas	249	–	–	–	–	–	–	–	–	–	249	–	–	249
Hutchinson	48	–	–	–	–	–	–	–	–	–	48	–	–	48
Lincoln	293	–	*	*	*	–	–	*	–	–	292	–	*	292
Minnehaha	270	1	1	2	4	*	1	29	1	17	215	1	1	266
Moody	16	–	*	*	*	–	–	*	–	–	15	–	*	16
Yankton	553	–	–	–	–	–	–	–	–	–	553	–	–	553
Total	1,817	1	1	2	4	*	1	30	1	18	1,760	1	2	1,813
Western Unit														
Custer	20,319	–	85	20,234	20,319	–	–	–	–	–	–	–	–	–
Fall River	2,359	–	–	2,359	2,359	–	–	–	–	–	–	–	–	–
Lawrence	43,269	–	100	43,170	43,269	–	–	–	–	–	–	–	–	–
Meade	3,983	–	–	3,983	3,983	–	–	–	–	–	–	–	–	–
Pennington	38,277	–	100	38,177	38,277	–	–	–	–	–	–	–	–	–
Total	108,207	–	285	107,922	108,207	–	–	–	–	–	–	–	–	–
State total	110,024	1	286	107,924	108,211	*	1	30	1	18	1,760	1	2	1,813

* *Less than 500 board feet.*

[1] *International 1/4-inch rule.*

Rows and columns may not sum due to rounding.

Table 11.--Harvest residues generated by industrial roundwood harvesting by Forest Survey Unit, county, and species group, South Dakota, 1999

(In thousand cubic feet)

Forest Survey Unit and county	All species	Species group												
		Softwoods				Hardwoods								
		Eastern redcedar	Spruce	Ponderosa pine	Total softwoods	Soft maple	Hackberry	Ash	Honeylocust	Black walnut	Cottonwood	Bur oak	Elm	Total hardwoods
Eastern Unit														
Bon Homme	3	–	–	–	–	–	–	–	–	–	3	–	–	3
Clay	33	–	–	–	–	–	–	–	–	–	33	–	–	33
Deuel	1	–	–	–	–	–	–	–	–	*	1	–	–	1
Douglas	24	–	–	–	–	–	–	–	–	–	24	–	–	24
Hutchinson	5	–	–	–	–	–	–	–	–	–	5	–	–	5
Lincoln	28	–	*	*	*	–	–	*	–	–	28	–	*	28
Minnehaha	25	*	*	*	*	*	*	2	*	2	21	*	*	25
Moody	2	–	*	*	*	–	–	*	–	–	1	–	*	2
Yankton	53	–	–	–	–	–	–	–	–	–	53	–	–	53
Total	174	*	*	*	*	*	*	2	*	2	169	*	*	174
Western Unit														
Custer	1,473	–	4	1,469	1,473	–	–	–	–	–	–	–	–	–
Fall River	170	–	–	170	170	–	–	–	–	–	–	–	–	–
Lawrence	3,122	–	5	3,118	3,122	–	–	–	–	–	–	–	–	–
Meade	290	–	–	290	290	–	–	–	–	–	–	–	–	–
Pennington	2,767	–	5	2,762	2,767	–	–	–	–	–	–	–	–	–
Total	7,822	–	14	7,808	7,822	–	–	–	–	–	–	–	–	–
State total	7,996	*	14	7,808	7,822	*	*	2	*	2	169	*	*	174

* *Less than 500 cubic feet.*

Rows and columns may not sum due to rounding.

Table 12.--Residues produced at primary wood-using mills by Forest Survey Unit, type of use, and residue type, South Dakota, 1999

(In thousand tons, green weight)

Forest Survey Unit and type of use	Total		Residue type					
			Wood residue				Bark	
			Coarse [1]		Fine [2]			
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Eastern Unit								
Industrial fuel used at mill	*	0.32	*	0.22	–	–	*	0.10
Domestic fuel	*	0.95	*	0.70	–	–	*	0.25
Miscellaneous[3]	0.51	0.81	0.12	*	0.18	0.81	0.21	*
Not used	0.13	1.62	0.03	1.00	0.05	0.15	0.05	0.47
Total	0.64	3.70	0.15	1.92	0.22	0.96	0.27	0.82
Western Unit								
Fiber products	180.22	–	147.81	–	32.41	–	–	–
Industrial fuel used at mill	39.76	–	–	–	–	–	39.76	–
Industrial fuel sold	4.39	–	0.35	–	–	–	4.04	–
Domestic fuel	7.20	–	0.98	–	6.22	–	–	–
Miscellaneous[3]	38.47	–	0.23	–	16.30	–	21.94	–
Not used	6.98	–	1.81	–	2.62	–	2.55	–
Total	277.02	–	151.17	–	57.56	–	68.29	–
All Units								
Fiber products	180.22	–	147.81	–	32.41	–	–	–
Industrial fuel used at mill	39.76	0.32	*	0.22	–	–	39.76	0.10
Industrial fuel sold	4.39	–	0.35	–	–	–	4.04	–
Domestic fuel	7.20	0.95	0.98	0.70	6.22	–	0.00	0.25
Miscellaneous[3]	38.98	0.81	0.35	*	16.48	0.81	22.15	*
Not used	7.12	1.62	1.84	1.00	2.67	0.15	2.61	0.47
Total	277.68	3.70	151.33	1.92	57.79	0.96	68.56	0.82

* *Less than 5 tons.*

[1] *Suitable for chipping such as slabs, edgings, veneer cores, etc.*

[2] *Not suitable for chipping such as sawdust, veneer clippings, etc.*

[3] *Livestock bedding, mulch, small dimension, and speciality products.*

Rows and columns may not sum due to rounding.

Table 13.--Annual mill capacity of active wood-using mills by mill type, mill name, and county, South Dakota, 1999

Mill type and mill name	County	Annual mill capacity
Sawmills		
Bennett Sawmill	Minnehaha	1,300 mbf[1]
Hills Products Group	Lawrence	8,000 mbf[1]
Morgan Sawmill	Custer	1,000 mbf[1]
Native Lumber Company	Lincoln	600 mbf[1]
Newberg Lumber Company, Inc.	Custer	1,500 mbf[1]
Pope & Talbot, Inc.	Lawrence	120,000 mbf[1]
R. E. Linde Sawmills, Inc.	Custer	5,000 mbf[1]
Rushmore Forest Products, Inc.	Pennington	30,000 mbf[1]
Sturgis Sawmill	Meade	4,000 mbf[1]
Walker Sawmill	Deuel	20 mbf[1]
Wood N Tees Shoppe	Minnehaha	250 mbf[1]
Yankton Box Company	Yankton	800 mbf[1]
Particleboard mill		
Merillat Industries	Pennington	2,600 cords[2]
Cabin log mill		
Jorgensen Log Homes, Inc.	Custer	50 mcf[3]
Northern Comfort Log Homes	Minnehaha	150 mcf[3]
Pole mills		
Evans Post and Pole	Custer	500 pieces
Wheeler Lumber Operations	Lawrence	12,000 pieces
Post mills		
Baker Timber Products, Inc.	Pennington	1,000 m pieces[4]
Evans Post and Pole	Custer	200 m pieces[4]
Wheeler Lumber Operations	Lawrence	200 m pieces[4]

[1] *Thousand board feet, International 1/4-inch rule.*

[2] *Standard cords are 128 cubic feet, consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

[3] *Thousand cubic feet.*

[4] *Thousand pieces.*

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2003. **South Dakota timber industry—an assessment of timber product output and use, 1999.** Resour. Bull. NC-213. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 31 p.

Discusses recent South Dakota forest industry trends; production and receipts of industrial roundwood; and production of saw logs in 1999. Reports on logging residue generated from timber harvest operations. Also reports on wood and bark residue generated at primary wood-using mills and on disposition of mill residues.

KEY WORDS: Industrial roundwood, logging residue, mill residue, production, receipts, saw logs

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